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Staphylococcus aureus osteomyelitis

a novel porcine model

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mass during the progression of T1D in NOD mice. Using this approach, we here provide a detailed account of the islet and beta-cell mass fluctuation during T1D development and progression. Further, we describe the spatial localization and the kinetics of the development of structures resembling tertiary lymphoid organs which are formed during the progression of autoimmune inflammation.
Together, these data provide a road map for the autoimmune infiltration and destruction of the pancreatic beta-cells during T1D progression that will aid in a more accurate assessment of the impact of specific susceptibility genes on this process as well as in evaluating the potential effect of novel therapeutic regimes.

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STAPHYLOCOCCUS AUREUS OSTEOMYELITIS: A NOVEL PORCINE MODEL

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A number of animal models of osteomyelitis have been developed in different animal species. All porcine models are based on direct inoculation of bacteria into the medullary cavity of bones. The aim of the present study was to elucidate the pig as a model for development of acute osteomyelitis following intravenous inoculation of S. aureus.
Sixteen pigs were challenged intravenously once or twice with 1x108 bacteria/kg body-weight and euthanized consecutively from 6h to 48h after challenge. Tissues were sampled for microbiology and pathology from the lungs and the growth plate area of different bones. Tissue sections were stained with HE, PTAH, Luna, and Van Gieson. Identification of S. aureus was obtained through indirect immunostaining.
Disseminated microabscesses developed within the lungs following 6h but had disappeared at 48h. Within the metaphyseal area of especially the long bones of the limbs, microabscesses developed deeply within the metaphyseal tissue after 12h and progressed until 48h after challenge. The bacterial count within the lung and bone tissues significantly decreased and increased, respectively, from 6h to 48h after challenge. Immunohistochemically, this pattern of bacterial quantification was also documented, as lung lesions only contained a few bacteria, whereas bone lesions often contained pronounced numbers.
The model revealed a pattern of development and presence of lesions similar to the frequently occurring osteomyelitis lesions in especially pre-pubertal children following haematogenous spread of S. aureus. Therefore, this model should be reliably applied in studies of this disease with respect to e.g. pathophysiology, pathomorphology, impact of strain virulence, and therapy.

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TRICHURIS SUIS IMMUNOMODULATES AN AUTOIMMUNE DISEASE (MULTIPLE SCLEROSIS) IN RATS

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Helminth infections are known to have a potent systemic immunomodulatory effect on the host immune response, reducing the impact of autoimmune diseases. The swine whipworm, Trichuris suis, thus alleviates symptoms in Crohns Disease and Ulcerative Colitis patients, and several other helminths have successfully been used to improve signs of disease in experimental animal models of e.g. multiple sclerosis and type-1 diabetes. To study the immunomodulatory effect of T.suis, we first demonstrated that T.suis eggs are able to hatch in